Notice of Allowability	Application No.	Applicant(s)	
	10/020,593	SRIDHAR, KAMAKSHI	
	Examiner	Art Unit	
	Derrick W. Ferris	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *6/9/2006*.

2. ☒ The allowed claim(s) is/are *1, 2, 4-9, 12-16, 19-23 renumbered as 1-18*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

6/10/06

DERRICK W. FERRIS
PATENT EXAMINER

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Larry Sewell on 6/9/2006.

The application has been amended as follows:

See attached page with respect to the claim amendment.

In the claims:

1. (currently amended) A method of implementing load balancing in a resilient packet ring ("RPR") network comprising a plurality of nodes and first and second rings each comprising a plurality of links for carrying information between the nodes in a clockwise direction and a counterclockwise direction, respectively, wherein adjacent ones of the nodes are connected by two of the links, the method comprising the steps of, for one of the nodes:

determining whether a load imbalance exists at the node in connection with a first class of service, using a technique selected from the group consisting of measuring and comparing delays experienced by a marked packet sent from the node to a second node via the first and second rings, respectively, and comparing a number of dropped packets on the first and second rings with a preselected maximum value; and

responsive to a determination that a load imbalance exists:

changing Bandwidth Broker ("BB") parameters at the node for the first class of service to cause new flows to be diverted from a more heavily loaded one of the rings to a less heavily loaded one of the rings; and

changing Quality of Service ("QoS") parameters at the node for the first class of service to improve traffic performance on the more heavily loaded one of the rings, while increasing bandwidth utilization on the less heavily loaded one of the rings.

2. (original) The method of claim 1 wherein the step of determining is performed at periodic time intervals.

3. (cancelled)

4. (original) The method of claim 1 further comprising the step of signaling to a QoS/BB monitor that a load imbalance has been detected responsive to a determination that a load imbalance exists.

5. (original) The method of claim 1 wherein the step of changing the BB parameters comprises the steps of:

decreasing an allocated bandwidth for the first class of service on the more heavily loaded ring; and

increasing an allocated bandwidth for the first class of service on the less heavily loaded ring.

6. (original) The method of claim 1 wherein the step of changing the QoS parameters comprises the steps of:

setting the peak traffic rate to the used bandwidth for the first class of service on the more heavily loaded ring;

reducing token bucket ("TB") parameters for all other classes of service on the more heavily loaded ring;

setting the peak traffic rate to the used bandwidth for the first class of service on the less heavily loaded ring; and

increasing the number of bytes in a class based queue ("CBQ") for the first class of service drained off in each scheduler rotation for each of the rings.

7. (original) The method of claim 1 wherein the RPR network is a wavelength division multiplex RPR and the first and second rings are first and second wavelengths, respectively.

8. (currently amended) Apparatus for implementing load balancing in a resilient packet ring ("RPR") network comprising a plurality of nodes and first and second rings each comprising a plurality of links for carrying information between the nodes in a clockwise direction and a counterclockwise direction, respectively, wherein adjacent ones of the nodes are connected by two of the links, the apparatus comprising, at one of the nodes:

means for detecting at the node a load imbalance in connection with a first class of service, including means using a technique selected from the group consisting of measuring and comparing delays experienced by a marked packet sent from the node to a second node via the first and second rings, respectively, and comparing a number of dropped packets on the first and second rings with a preselected maximum value;

means responsive to detection at the node of a load imbalance for changing Bandwidth Broker ("BB") parameters at the node for the first class of service to cause new flows to be diverted from a more heavily loaded one of the rings to a less heavily loaded one of the rings; and

means responsive to detection at the node of a load imbalance for changing Quality of Service ("QoS") parameters at the node for the first class of service to improve

traffic performance on the more heavily loaded one of the rings, while increasing bandwidth utilization on the less heavily loaded one of the rings.

9. (original) The apparatus of claim 8 wherein the means for detecting performs the detecting at periodic time intervals.

10 - 11. (cancelled)

12. (original) The apparatus of claim 8 further comprising means for signaling to a QoS/BB monitor that a load imbalance has been detected.

13. (original) The apparatus of claim 8 wherein the means for changing the BB parameters comprises:

means for decreasing an allocated bandwidth for the first class of service on the more heavily loaded ring; and

means for increasing an allocated bandwidth for the first class of service on the less heavily loaded ring.

14. (original) The apparatus of claim 8 wherein the means for changing the QoS parameters comprises:

means for setting the peak traffic rate to the used bandwidth for the first class of service on the more heavily loaded ring;

means for reducing token bucket ("TB") parameters for all other classes of service on the more heavily loaded ring;

means for setting the peak traffic rate to the used bandwidth for the first class of service on the less heavily loaded ring; and

means for increasing the number of bytes in a class based queue ("CBQ") for the first class of service drained off in each scheduler rotation for each of the rings.

15. (original) The apparatus of claim 8 wherein the RPR network is a wavelength division multiplex RPR and the first and second rings are first and second wavelengths, respectively.

16. (currently amended) Apparatus for implementing load balancing in a resilient packet ring ("RPR") network comprising a plurality of nodes and first and second rings each comprising a plurality of links for carrying information between the nodes in a clockwise direction and a counterclockwise direction, respectively, wherein adjacent ones of the nodes are connected by two of the links, the apparatus comprising, at one of the nodes:

a Quality of Service/Bandwidth Broker ("QoS/BB") monitor responsive to detection at the node of a load imbalance in connection with a first class of service for signaling to a BB to change BB parameters at the node for the first class of service to cause new flows to be diverted from a more heavily loaded one of the rings to a less heavily loaded one of the rings and for changing QoS parameters at the node for the first class of service to improve traffic performance on the more heavily loaded one of the rings, while increasing bandwidth utilization on the less heavily loaded one of the rings, wherein the detection of a load imbalance is accomplished using a technique selected from the group consisting of measuring and comparing delays experienced by a marked packet sent from the node to a second node via the first and second rings, respectively, and comparing a number of dropped packets on the first and second rings with a preselected maximum value..

17-18. (cancelled)

19. (original) The apparatus of claim 16 wherein the QoS/BB monitor is apprised of a load imbalance via an in-band signaling mechanism.

20. (original) The apparatus of claim 16 wherein the QoS/BB monitor is apprised of a load imbalance via an out-of-band signaling mechanism.

21. (original) The apparatus of claim 16 wherein the QoS/BB monitor changes the BB parameters by:

decreasing an allocated bandwidth for the first class of service on the more heavily loaded ring; and

increasing an allocated bandwidth for the first class of service on the less heavily loaded ring.

22. (original) The apparatus of claim 16 wherein the QoS/BB monitor changes the QoS parameters by:

setting the peak traffic rate to the used bandwidth for the first class of service on the more heavily loaded ring;

reducing token bucket ("TB") parameters for all other classes of service on the more heavily loaded ring;

setting the peak traffic rate to the used bandwidth for the first class of service on the less heavily loaded ring; and

increasing the number of bytes in a class based queue ("CBQ") for the first class of service drained off in each scheduler rotation for each of the rings.

23. (original) The apparatus of claim 16 wherein the RPR network is a wavelength division multiplex RPR and the first and second rings are first and second wavelengths, respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (571) 272-3123. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571)272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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6/10/06

DERRICK FERRIS
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